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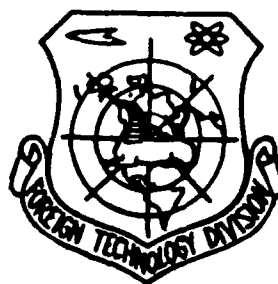
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SHANXI UNIVERSITY MOLECULAR SCIENCE RESEARCH INSTITUTE

by

Wang Yuekui

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HUMAN TRANSLATION

FTD-ID(RS)T-0040-91 5 June 1991

MICROFICHE NR: FTD-91-C-000409

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INSTITUTE

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English pages: 6

Source: Huaxue Tongbao, Nr. 9, 1988, pp. 64-65

Country of origin: China

Translated by: SCITRAN
F33657-84-D-0165

Requester: FTD/TTTRL/1Lt Billiana Owens

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TITLE: SHANXI UNIVERSITY MOLECULAR SCIENCE
RESEARCH INSTITUTE

AUTHOR: Wang Yuekui

Shanxi University Molecular Science Research Institute was created on September 24, 1983. It was to be a base for the nurturing of persons of talent in high level specialized disciplines centered around basic research in the development of the life sciences and the science of materials. It is our country's first molecular research institute.



SHANXI UNIVERSITY MOLECULAR SCIENCE RESEARCH INSTITUTE

The life sciences and the science of materials are the most vigorous two fields among the natural sciences of the present era. Research in them requires a mutual intermixing and coordinated and related work. In this type of mutual cross fertilization, osmosis, and synthetic generalization between different sciences, new science on the cutting edge is being produced. Moreover, molecular science is nothing else but one of this type of new pioneering sciences. The molecular science research institute is exactly appropriate to this type of requirement for scientific development by taking personnel who originally practiced different sciences (these principally include nonorganic biochemistry, structural chemistry, biochemistry, and molecular immunology, as well as other similar fields) and organizing

them together in one place to jointly develop scientific research.

The principal direction of the research institute is--from the molecular and atomic level--to do research on the relationships between the structure of matter, its properties, and its functions, and to investigate the laws and mechanisms associated with the changes of matter in order to provide a basis for the manufacture and synthesis of new materials and new drugs. Along with this, its direction is to make use of chemical synthesis, biological engineering, as well as bionic organic chemistry, and other similar new technologies in order to pioneer new methods of production for pharmaceuticals, foods, materials, and biological engineering, as well as other similar areas.

The basic mission of the research institute is to center its concentration on the development of a foundation in the two fields of life science and materials science and to apply this foundation and technology to develop other similar aspects of scientific research. This involves fostering research students in the specialized fields of nonorganic chemistry, structural chemistry, biochemistry, and physical organic chemistry, as well as other similar disciplines. It involves assuming the responsibility for the tasks of teaching the foundation courses of basic science and for elective courses that have specialized relationships to the Chemistry Department and the Physics Department. Along with this, it involves the drafting of a plan for fostering the specialized discipline of modern biochemistry, the organizing of activities for teaching and study, and the guiding of graduate dissertations, as well as other similar activities.

In the institute as a whole, there are currently 44 scientific research and auxilliary personnel. Among these, there are 7 professors (these include 2 honorary professors and 1 professor who holds concurrent positions), 6 assistant professors, and 12 lecturers. From the founding of the Research Institute, the leading scholar, Professor Yang Pin, has taken the responsibility of Institute Director. The professors Yuan Jingming and Xia Chizhong have been Assistant Institute Directors.

Institute Director, Professor Yang Pin, is Deputy Dean of Shanxi

University. In 1960, he graduated from the Chemistry Department of Beijing University. He then took on the responsibility of being a director for the 21st and 22d China Chemistry Conferences. He was Deputy Chief Director of the Shanxi Province Chemistry Society. He was on the Editorial Committee of the Chemistry Bulletin and Molecular Science Journal. He was a representative to the 5th and 6th All China Peoples Congresses. For many years, he has carried on research into the relationships between structures and properties and the theory of chemical bonds. For the last 6 years, the focus has turned toward structural nonorganic chemistry, nonorganic biochemistry, the chemistry of mixtures, and research into the science of materials. Among his honors, he received one All China Science Conference Prize for Important Scientific Achievement, and seven province level prizes for scientific achievement.



INSTITUTE DIRECTOR YANG PIN AT WORK

The Research Institute is currently set up with 5 research laboratories for structural nonorganic chemistry, nonorganic biochemistry, the study of molecular enzymes, cell engineering, and physical nonorganic chemistry. Excluding applied projects, at the present time, the content of the basic theoretical foundation which is being developed is capable of being divided into four large classes: (1) research into the mutual interactions between metal ions and biological and pharmaceutical molecules, research into molecular

pharmacology, molecular dynamics calculations and experimental measurements of the relationships of structures in large biological molecules, research on techniques to separate and extract rare earths, research into rare earth mixture optico-magnetic properties and their basic natures in forming chemical bonds, the synthesis of new forms of nonorganic materials, and other similar topics; (2) research into enzyme activity central reaction radical groups, research into fixative biological catalysts, research into the catalytic reactions of enzymes in organic solvents, as well as amino acid analysis, and other similar subjects; (3) research into simulations of enzyme catalysis organic chemical reactions, bionic organic chemistry research, the synthesis of pharmaceuticals and intermediate pharmaceutical forms, as well as other similar topics; and, (4) using Shan Kelong antibodies to do research on the antigen structure of the surfaces of viruses and the early treatment of malignant cancers, as well as other similar topics.

The Research Institute, over the years, has undertaken, one after the other, 4 projects with the financial assistance of the National Natural Sciences Fund, 9 projects with the financial assistance of the Shanxi Province Scientific Fund and the Provincial Science Committee, and 8 projects with the financial assistance of the Scientific Research Office of the school in question. Among these, many projects have already been completed. In conjunction with this, the Institute has obtained one Shanxi Province Science and Technology Achievement Prize (First Class), two (Third Class), and one (Fourth Class). It has gotten two Shanxi Province Prizes for Progress in Theory (First Class), two (Second Class), and other similar awards. Besides this, at the present time, a deal has already been struck for three technology transfer projects. Requests have been made to the National Patent Bureau for one patent. It has put out over 100 scholarly articles and published six learned monographs and translations.

At the same time that scientific research was being finished, the institute in question also put special emphasis on the work of fostering human talent. Besides going through broad and deep theoretical instruction and training in scientific research and the fostering of M.A. graduate students to independently handle the areas

of nonorganic chemistry, biochemistry, and organic chemistry, it also received a commission from the Education Committee of the Province, and, with the Biology Department and Chemistry Department working together, they jointly created a four year system for the undergraduate teaching of a specialization in modern biochemistry to be the curriculum for the province in question for dealing with the foundation of scientific and technical human talent in bioengineering, medical and pharmacological research, and biochemistry or for high school teachers. From 1983 onward, the system has already fostered 30 Masters of Science graduate students and 24 undergraduates. At the present time, 27 Masters Degree level graduate students and 43 undergraduates are engaged in studies. As far as the scientific research and auxilliary personnel of the institute in question are concerned, attention is being paid to strengthening their pursuit of further studies and great effort is being put into overseas study. At the present time, there are 6 people studying hard for their Doctoral Degrees, 1 person is a visting scholar, and 1 person has already obtained a Doctoral Degree and returned to the Institute. Within the year, it is planned to, again, send 3 persons to study in England or act as visiting scholars.

From its foundation to the present time, the Institute has achieved, from personages in various areas both inside the country and abroad, widespread respect and energetic support, very greatly promoting the development of various programs in the work of the Institute. In order to strengthen the exchange of scholarly knowledge and to take a firm and timely grasp on the status of the development of science and technology inside and outside the country, the Institute in question, besides maintaining relationships with relevent high level institutes and schools inside China and with scientific research units, has also sent out the Institute Director, Yang Pin, who has gone out to visit several times, and, time after time, has concluded agreements for scholarly exchanges and agreements for cooperative work with Hong Kong's Zhongwen University Science and Engineering Research Institutes and Research Center for the Study of Chinese Medicine and has reached cooperative agreements with the Chemistry Department of France's Pierre and Marie Curie University and the Chemistry Department of West Germany's Aachen High Level

Industrial University in order to join together in fostering research students and the mutual exchange of visiting scholars. Along with this, it has already taken measures to set up solid relationships with such institutions as England's Sussex University, the U.S.'s University of Southern California, and Japan's Molecular Science Research Institute. At the present time, there is the professor at the U.S. University of Washington's Graduate School Chemistry Department and Chairman of the General Conference of the All-U.S. Association of Chinese People, Mr. Pan Yugang, and Professor Michel Che (Shi Misai) of the Chemistry Department of France's Pierre and Marie Curie University who are honarary professors at the Institute in question and come at indefinite intervals to lecture.



MR. PAN YUGANG (RIGHT) RECEIVES CERTIFICATE AS HONARARY PROFESSOR

The Research Institute currently occupies a surface area of over 2000 square meters. There are 15 laboratories and over ten large model precision instruments. It will not be long until it enters into the construction of a new science building possessing 40 laboratories. In the area of instrumentation and equipment, Shanxi Province will also vigorously assist financially. Hereafter, this Institute will develop even more, enlarge, and gradually be formed into a modernized base for scientific research in Shanxi Province--one which possesses th special character of scientific research in the Institute that has been discussed and also emphasizes both teaching and learning in order to make even greater contributions to the economic construction of our country and to the fostering of persons of talent.